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LAHIVE & COCKFIELD, LLP
ONE POST OFFICE SQUARE
BOSTON, MA 02109-2127

EXAMINER	
THOMPSON, JAMES A	
ART UNIT	PAPER NUMBER
2625	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/000,461	WAKSMAN, PETER	
	Examiner	Art Unit	
	James A. Thompson	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 16 February 2007 have been fully considered but they are not persuasive.

Section I.A:

Applicant argues that Braudaway (USPN 5,502,458) does not disclose the step of "converting the input color data in the intermediate table to an output color data in an output color space, wherein *the same input color data in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color data*", as recited in claim 1 [emphasis added by Applicant]; and that Braudaway does not disclose the step of "building an intermediate table for storing the input color data", as also recited in claim 1.

Examiner replies that a display-independent matrix is formed under the assumption that the desired digital image is defined by the display-independent pixel values (column 5, lines 45-53 of Braudaway). Each pixel of the input image is replaced by an indexed palette entry from the display-independent palette (column 5, lines 53-59 of Braudaway). Thus, an intermediate table is formed so that the input pixel values can be readily converted to the output pixel values *via* the display-independent matrix of transformation. The display-independent matrix is used to reference the display-independent palette table, which in turn is used to replace input pixel values with index numbers from the display-independent palette table (column 5, line 65 to column 6, line 4 of Braudaway). By relying upon palette index entries, the input image data need only index the output palette rather than have each pixel value be recalculated for conversion. It is the display-independent matrix of transformation that makes it possible for each one of the input pixel values to be simply and readily assigned a palette index number, rather than go through the laborious process of converting each individual pixel value.

Section I.B:

Applicant argues that Braudaway does not disclose the step of "converting the input color data in the intermediate table to an output color data in a second color space, wherein *the same input color data in different pixels is held once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color data*", as recited in claim 13 [emphasis added by Applicant]; and that Braudaway does not disclose the step of "building an intermediate table for holding the input color data at a position of the index", as also recited in claim 13.

Examiner replies that Examiner's reply to Section I.A of Applicant's arguments applies to Applicant's arguments in Section I.B. Further, the index number used to address the display-independent palette entries is the "position of the index" recited in claim 13.

Section I.C:

Applicant argues that Braudaway does not disclose a storage facility to store an intermediate table that holds input color representations of a set of pixels at positions of indices, where the indices are responsive to the color representations of the set of pixels, as recited in claim 18; and that Braudaway does not disclose a conversion facility wherein the same input color representation in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color representation.

Examiner replies that Examiner's reply to Section I.A of Applicant's arguments applies to Applicant's arguments in Section I.C. Again, the "positions of indices" are the index positions which reference the display-independent palette entries.

Section I.D:

Applicant argues that Braudaway does not disclose the step of "converting the input color image data in the intermediate table to an output color image data in the second color space, wherein *the same input color image data in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color image data*", as recited in claim 20 [emphasis added by Applicant]; and that Braudaway does not disclose the step of "mapping input color image data for the group of pixels in the first color space to indices, wherein *the input color image data is stored in an intermediate table at positions of the indices*", as also recited in claim 20 [emphasis added by Applicant].

Examiner replies that Examiner's reply to Section I.A of Applicant's arguments applies to Applicant's arguments in Section I.D. Again, the "positions of indices" are the index positions which reference the display-independent palette entries.

Section II:

Applicant's arguments in Section II are based on the alleged lack of disclosure in Braudaway with respect to limitations recited in claims 1, 13 and 20, as set forth in Section I of Applicant's arguments. Since Braudaway has been demonstrated above to teach all the limitations disputed by

Applicant, the remaining claims cannot therefore be considered allowable merely due to their respective dependencies from claims 1, 13 and 20.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 8-9, 12-14 and 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Braudaway (US Patent 5,502,458).

Regarding claim 1: Braudaway discloses providing input color data for a group of pixels in an input color space (column 7, lines 7-9 of Braudaway); building an intermediate table (display-independent matrix) for storing the input color data (column 5, lines 45-53 of Braudaway), wherein said input color data is stored at an indexed position, the indexed position responsive to the input color data (column 5, lines 53-56 of Braudaway); converting the input color data in the intermediate table to an output color data in an output color space, wherein the same input color data in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color data (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations); and for each pixel in the group of pixels substituting the output color data for the input color data (figures 2B-2C and column 6, lines 14-24 of Braudaway).

Regarding claim 2: Braudaway discloses using a host function to determine the indexed position in the intermediate table for each of the pixels in the group of pixels (column 7, lines 21-26 of Braudaway). The host function is the function based on the normalized luminance values that is used to create the display specific palette for a particular display device (column 7, lines 21-26 of Braudaway).

Regarding claims 8-9: Braudaway discloses that the electronic device is a computer system (figure 1(10) and column 6, lines 28-33 of Braudaway). Since said computer system performs the steps of the flowcharts in figures 4-5 of Braudaway (column 6, lines 32-33 of Braudaway), said computer system is also clearly an image-reproducing apparatus.

Regarding claim 12: Braudaway discloses that the group of pixels comprises a row of pixels (figure 1(28) and column 6, lines 40-44 of Braudaway). Since a display is used to output the image data

(figure 1(28) and column 6, lines 40-44 of Braudaway) and said display is clearly two-dimensional, then said group of pixels must comprise a row of pixels.

Regarding claim 13: Braudaway discloses providing a set of input color data for pixels, said color data encoding colors for the pixels in a first color space (column 7, lines 7-9 of Braudaway); for each of the pixels, determining an index for the pixel based on the color data for the pixel (column 5, lines 53-56 of Braudaway); building an intermediate table (display-independent matrix) for holding the input color data at a position of the index (column 5, lines 45-56 of Braudaway); converting the input color data into an output (display-specific) color data in a second color space, wherein the same input color data in different pixels is held once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color data (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations); and for each pixel, substituting the output color data for the input color data (figures 2B-2C and column 6, lines 14-24 of Braudaway).

Regarding claim 17: Braudaway discloses that the method is performed by a processor (figure 1 (11) and column 6, lines 30-33 of Braudaway).

Regarding claim 18: Braudaway discloses a device (figure 1(10) of Braudaway) comprising: a storage facility (figure 1(15a) and column 6, lines 35-36 of Braudaway) for storing an intermediate table (display-independent matrix) (column 5, lines 45-53 of Braudaway), wherein the intermediate table holds input color representations of a set of pixels at positions of indices, the indices being responsive to the color representations of the set of pixels (column 5, lines 53-56 of Braudaway); and a conversion facility (figure 1(11) and column 6, lines 32-34 of Braudaway) for converting the input color representations of the set of pixels in the intermediate table to output (display-specific) color representations in a second color space, wherein the same input color representation in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color representation (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations).

Regarding claim 19: Braudaway discloses that the conversion facility is implemented by a processor (figure 1(11) and column 6, lines 30-33 of Braudaway).

Regarding claim 20: Braudaway discloses mapping input color image data for a group of pixels in the first color space (column 7, lines 7-9 of Braudaway) to indices (column 5, lines 53-56 of Braudaway), wherein the input color image data is stored in an intermediate table (display-independent

matrix) at positions of the indices (column 5, lines 45-56 of Braudaway); converting the input color image data in the intermediate table to an output color image data in the second color space, wherein the same input color image data in different pixels is stored once in the intermediate table to avoid repeated conversion calculations for the different pixels having the same input color image data (column 5, line 65 to column 6, line 4 of Braudaway – the use of a transform matrix means that different pixels with the same input value are converted without the need for repeated conversion calculations); and reconstructing the group of pixels in the second color space using the output color data (figures 2B-2C and column 6, lines 14-24 of Braudaway).

Regarding claim 21: Braudaway discloses using a hash computer programming function to determine the indexed position in the intermediate table for each of the pixels in the group of pixels (figure 2C("entry") and column 5, lines 53-56 of Braudaway). As is well-known in the art, a hash computer programming function directly accesses data at a specific address based on a specific key in a specific key set. In the case of the color palette taught by Braudaway, the key for the hash function is the entry number of the intermediate table.

Regarding claim 22: Braudaway discloses that the indexed position of the pixels is also stored in an index array at a location in the index array that corresponds to a location in the group of pixels (column 5, lines 45-53 of Braudaway).

Regarding claims 3, 14 and 23: Braudaway discloses that the input color space comprises a (R,G,B) color space (column 7, lines 8-11 of Braudaway).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4-5, 10-11, 16 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braudaway (US Patent 5,502,458) in view of Liang (US Patent 5,579,031).

Regarding claims 4, 16 and 24: Braudaway does not disclose expressly that the output color space, and thus the second color space, comprises a (C,M,Y,K) color space.

Liang discloses converting a color space to a (C,M,Y,K) color space (figure 9 and column 15, lines 28-32 of Braudaway). Thus, the second color space is a (C,M,Y,K) color space.

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a (C,M,Y,K) color space for the output device color space, as taught by Liang. The motivation for doing so would have been to be able to output an image on a printer (column 15, lines 22-23 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claims 4, 16 and 24.

Regarding claims 5 and 25: Braudaway does not disclose expressly that the output color space comprises a (C,M,Y) color space.

Liang discloses converting a color space (column 15, lines 28-32 of Braudaway) to a (C,M,Y) color space (column 11, line 66 to column 12, line 2 and column 12, lines 62-67 of Braudaway).

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a (C,M,Y) color space for the output device color space, as taught by Liang. The motivation for doing so would have been to be able to output an image on a printer (column 15, lines 22-23 of Liang), and the black (K) color is dependent upon the (C,M,Y)-values (column 12, lines 62-67 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claims 5 and 25.

Regarding claim 10: Braudaway does not disclose expressly that said electronic device is a copier.

Liang discloses that the electronic device used in matching colors produces a printed output of the converted image data (column 15, lines 22-27 of Liang), and is thus a copier.

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to embody the electronic device as a copier, as taught by Liang. The motivation for doing so would have been to be able to output an image on a printer (column 15, lines 22-23 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claim 10.

Regarding claim 11: Braudaway does not disclose expressly that said electronic device is a printer.

Liang discloses that the electronic device used in matching colors is a printer (column 15, lines 22-27 of Liang).

Braudaway and Liang are combinable because they are from the same field of endeavor, namely the conversion of color data from an input device color space to an output device color space so that the images look the same for both devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to embody the electronic device as a printer, as taught by Liang. The motivation for doing so would have been to be able to output a printed hard copy of an imager (column 15, lines 22-23 of Liang). Therefore, it would have been obvious to combine Liang with Braudaway to obtain the invention as specified in claim 11.

6. Claims 6-7, 15 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braudaway (US Patent 5,502,458) in view of Winkelman (US Patent 5,668,890).

Regarding claims 6-7, 15 and 26-27: Braudaway does not disclose expressly that the input color space, and thus the first color space, comprises a grey scale color space; and the output color space, and thus the second color space, comprises a grey scale color space.

Winkelman discloses a grey scale color space for the input color space (column 6, lines 45-50 and lines 56-59 of Winkelman). If a black-and-white original is input (column 6, lines 45-50 of Winkelman), the only the luminance (L*) component of the CIELab color space will be used.

Winkelman further discloses that the output color space is a grey scale color space (figure 20 and column 5, lines 7-14 of Winkelman). Since the input color space is grey scale due to the fact that only the luminance (L*) component is used (column 6, lines 45-50 and lines 56-59 of Winkelman), then the output color space (figure 20(L^*_{KOR},a^*_{KOR},b^*_{KOR}) must also be grey scale (only L^*_{KOR} used).

Braudaway and Winkelman are combinable because they are from the same field of endeavor, namely the conversion and correction of color spaces in digital image systems so that the image input with one device will look the same when output by another device. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a grey scale color space for the input color space and the output color space. The suggestion for doing so would have been that some images are black-and-white image (column 6, lines 45-50 of Winkelman), and thus are better represented with a grey scale color space. Therefore, it would have been obvious to combine Winkelman with Braudaway to obtain the invention as specified in claims 6-7, 15 and 26-27.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James A. Thompson
Examiner
Technology Division 2625

JAT
09 April 2007

DAVID MOORE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER